

BEFORE THE OFFICE OF THE COMMISSIONER OF RAILROADS

STATE OF WISCONSIN

On the Commissioner's Own Motion for a Determination of the Adequacy of Warning Devices at the Grade Crossings of the Wisconsin Central Ltd. Tracks with CTH 'K' and Capital Road in the Town of Unity, Clark County

9164-RX-479

FINDINGS OF FACT AND ORDER

The Commissioner of Railroads has directed the staff of the Office of the Commissioner of Railroads (OCR) to investigate the adequacy of warning devices under §195.28, Stats., at the grade crossing of the Wisconsin Central Ltd. (WCL) tracks with CTH 'K' (Crossing No. 689 951G / MP 298.43) and Capital Road (Crossing No. 689 945D / MP 295.69) in the Town of Unity, Clark County.

OCR investigators inspected the CTH 'K' crossing on July 21, 2004 and the Capital Road crossing on August 6, 2004. No hearing was held.

Findings of Fact

THE COMMISSIONER FINDS:

The Wisconsin Central Ltd. operates 25 through train movements per day over each crossing at a timetable speed of 60 mph. Each crossing consists of one mainline track.

CTH 'K' Crossing no. 689 951G / MP 289.43

CTH 'K' is 23' wide in the vicinity of the crossing and intersects the railroad tracks at an angle of 45° (right-hand forward). CTH 'K' carried an average daily traffic (ADT) of 460 according to 2002 DOT records at a legal speed limit of 55 mph.

A motorist traveling at 55 mph requires a safe stopping distance of 527'. The crossing is visible from more than 527' in each direction. Assuming a train speed of 60 mph, a motorist traveling at 55 mph needs to see a train when it is 655' from the crossing from a point 527' down the highway. The sight distance available in each quadrant from the safe stopping distance is as follows: 180' northwest quadrant, 300' northeast quadrant, 120' southwest quadrant and 200' southeast quadrant. The sight distance is inadequate in all quadrants.

At all crossings, except those with gates, a driver stopped 15' short of the near rail must be able to see far enough down the track, in both directions, to determine if sufficient time exists for moving their vehicle safely across the tracks to a point 15' past the far rail, prior to the arrival of a train. Required clearing sight distance along both directions of the track, from the stopped position of the vehicle, is dependent upon the maximum train speed and the acceleration characteristics of the "design" vehicle. The necessary clearing sight distance at the CTH 'K' crossing is 1345'. The available clearing sight distance is adequate.

The exposure factor at this crossing is 11,500. The exposure factor equals the product of the number of trains per day and the number of highway vehicles per day, which yields a numerical value for the potential conflicts each day at the crossing.

Two train-vehicle accidents have occurred at this crossing since 1973. The accidents occurred in 2000 and 2001.

The Wisconsin Department of Transportation has produced a benefit-cost analysis for all at-grade crossings in the state. Installing new automatic flashing lights with gates and constant warning time circuitry at the CTH 'K' crossing has a net benefit of about \$718,000. The benefit-cost ratio is about 5.15 meaning that the public will receive \$5.15 in safety benefits for each dollar expended.

Accidents that do occur here will likely be quite serious if a through train is involved due to their 60 mph speed. Train speed is strongly correlated with fatalities in train/vehicle accidents. More specifically, crossings with train speeds of 40 mph and over have a disproportionate number of fatalities. According to Federal Railroad Administration (FRA) statistics, nationally, in 1994 71% of fatalities occurred at crossings with train speeds of 40 mph+, even though only 26% of all crossings had train speeds of 40 mph+.

The crossing presently has 12" incandescent automatic flashing lights and advance warning signs for warning devices. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety 12" LED automatic flashing lights with gates and constant warning time circuitry are needed because of the poor sight distance, train volume, train speed, accident history, and projected net benefit.

Capital Road

Crossing no. 689 945D / MP 295.69

Capital Road is a 2-lane unpaved rural roadway and intersects the railroad tracks at an angle of 45° (right-hand forward). Capital Road carries an estimated ADT of 25 at a legal speed limit of 55 mph.

A motorist traveling at 55 mph requires a safe stopping distance of 527'. The crossing is visible from more than 527' in each direction. Assuming a train speed of 60 mph, a motorist traveling at 527 mph needs to see a train when it is 655' from the crossing from a point 527' down the highway. The sight distance available in each quadrant from the safe stopping distance is inadequate.

The necessary clearing sight distance at the Capital Road crossing is 1195'. The available clearing sight distance is over 1500'.

The exposure factor at this crossing is 625.

Three train-vehicle accidents have occurred at this crossing since 1973. The accidents occurred in 1981 and 2000 (2). One of the 2000 accidents included a fatality while the other 2000 accident included an injury.

Accidents that do occur here will likely be quite serious if a through train is involved due to their 60 mph speed.

Installing new automatic flashing lights with gates and constant warning time circuitry at the Capital Road crossing has a net benefit of about -51,000. The benefit-cost ratio is about 0.69 meaning that the public will receive \$0.69 in safety benefits for each dollar expended.

The crossing is presently protected with reflective crossbucks and advance warning signs. The existing warning devices are inadequate. The existing warning devices will be adequate until such time as the new warning devices are installed. In order to adequately protect public safety stop signs are needed because of the inadequate sight distance. Drivers will be able to see far enough down the tracks from a stopped position to decide whether to proceed over the crossing. Automatic flashing lights are not warranted based on the very low traffic volume.

Constant warning time circuitry adjusts for train speed and causes the crossing signals to always operate for the same amount of time before the train reaches the crossing, regardless of train speed. A motion detector simply detects the train operation, but does not adjust for train speed so that the amount of warning time varies based on train speed.

Light emitting diodes (LED) are a relatively new application for crossing signals. The LED lamps replace the incandescent bulbs. LEDs have higher conspicuity, a wider cone of vision, and longer life than incandescent lights. LEDs are especially useful on east-west roadways where the rising and setting sun may make the signals difficult to see.

Source of funding: The signal materials and installation shall be paid from OCR safety funds.

Conclusion on the Issue

THE COMMISSIONER CONCLUDES:

1. That in order to adequately protect and promote public safety, it is necessary to install and maintain 12" LED automatic flashing lights with gates and constant warning time circuitry at the crossing of the tracks of Wisconsin Central Ltd. with CTH 'K' in the Town of Unity, Clark County.

2. That in order to adequately protect and promote public safety at the crossing of the tracks of Wisconsin Central Ltd. with Capital Road in the Town of Unity, Clark County, it is necessary to install and maintain stop signs.

Conclusion of Law

THE COMMISSIONER CONCLUDES:

That the jurisdiction of the Office of the Commissioner of Railroads under §195.28, Stats., extends to this matter. Accordingly, the Office enters an order consistent with the findings of fact.

Order

THE COMMISSIONER ORDERS:

1. That the **Wisconsin Central Ltd.** shall install and maintain 12" LED automatic flashing lights with gates, constant warning time circuitry and other appropriate appurtenances in accordance with such plans as are filed with and approved by the Office of the Commissioner of Railroads at the crossing of its tracks with **CTH 'K'** at-grade in the Town of Unity, Clark County by **December 31, 2005** (Crossing No. 689 951G / MP 298.43).

2. That the **Wisconsin Central Ltd.** shall submit to the Office of the Commissioner of Railroads signal and circuit plans with the cost estimate of its proposed installation and upon completion of the signal project, a detailed statement of the actual cost to the Office and to the Wisconsin Department of Transportation.

3. That the signal installation work herein ordered shall not begin until the district office of the Wisconsin Department of Transportation informs the railroad that they may start such work and such start notice will not be issued until appropriate federal aid or other funding arrangements have been assured. The cost of the new project initiated before the start notice will not be reimbursed with public funds and shall be the responsibility of the railroad.

4. That the **Town of Unity** shall install and maintain stop signs on separate posts (not on the crossbuck posts) on each approach to the crossing of the Wisconsin Central Ltd. tracks with **Capital Road** at-grade in the Town of Unity, Clark County by **April 30, 2005** (Crossing No. 689 945D / MP 295.69). The Town of Unity shall bear the costs to install and maintain the stop signs.

5. That the **Wisconsin Central Ltd.** shall pay any cost assessed to the railroad pursuant to §195.60, Stats., for the investigation of this matter by the Office. The railroad shall not pass on those assessment costs either directly or indirectly.

6. That if the petitioner, railroad or any interested party objects to this order and requests a hearing within 20 days of the date of this order in writing, the Office will hold a public hearing.

7. That jurisdiction is retained.

Dated at Madison, Wisconsin, _____.

By the Office of the Commissioner of Railroads.

Rodney W. Kreunen
Commissioner of Railroads

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